2005

Bridging the Assimilation Gap: A User Centered Approach to IT Adoption in Corporate HR Processes

Tobias Keim
Univentures GmbH, keim@univentures.de

Jochen Malinowski
Frankfurt University, malinowski@wiwi.uni-frankfurt.de

Tim Weitzel
Frankfurt University, tweitzel@wiwi.uni-frankfurt.de

Bridging the Assimilation Gap: A User-Centered Approach to IT Adoption in Corporate HR Processes

Tobias Keim
Univentures GmbH
keim@univentures.de

Jochen Malinowski
Frankfurt University
malinowski@wiwi.uni-frankfurt.de

Dr. Tim Weitzel
E-Finance Lab, Frankfurt University
tweitzel@wiwi.uni-frankfurt.de

ABSTRACT

The successful adoption of IT innovation and the attraction of qualified human resources are both crucial for organizational performance. However, there is still surprisingly little research at the intersection of both fields: the adoption, diffusion and infusion of IT within corporate HR processes. This is astonishing as evolving IT support in recent years has substantially transformed HR processes showing attractive optimization potentials. In this paper, we apply findings from theory and own qualitative and quantitative research to the recruitment process. We present a stage model for the e-HR field and argue that with changing forms of IT support different theoretical models and constructs need to be applied. Also, as soon as locus of adoption and impact begin to deviate an assimilation gap emerges. We therefore adopt a user perspective and show how HR and IT managers can overcome this gap in order to successfully infuse IT in corporate recruitment processes.

Keywords

IT adoption, IT diffusion, Human Resources, (E-)Recruitment, Candidate Attraction, Applicant Management Systems.

INTRODUCTION

Recruiting and developing the right human resources is a fundamental source of innovation for many corporations (Lee, 1999). Also, as scarcities of certain skill profiles appear on the labor market, shortened time-to-hire represents an important competitive advantage. In recent years, the adoption of IT has contributed to the efficient recruitment of many rare and diverse skill profiles in firms. Thus, the successful IT adoption within corporate HR represents the basis for important competitive advantage. However, little research so far has been undertaken on IT diffusion in recruitment processes. This is surprising as the adoption of IT in this field differs in many ways from IT support for other business processes. For example, as many companies move towards corporate electronic skill market places, IT adoption in the HR field represents a major change management process hitting the entire workforce independent of individual positions or levels of IT-literacy. In addition, the adoption of IT within corporate HR processes impacts not only on internal individuals and on external service providers but also on external individuals like job seekers. As companies with internal IT support must increase the fraction of digital applications, candidates need to adapt their preferences when applying for a job. Accordingly, our research questions are: How does information technology diffuse along the recruitment process within organizations? What are forms, drivers and inhibitors of such IT adoption? How should HR managers conceive and manage projects in the e-Recruitment field?

In order to address these questions, we first summarize major findings from the literature on the diffusion of IT innovation. We then introduce the recruitment function together with its forms of IT support. Based on this, a concrete stage model for the e-HR field is presented in which we identify a shift from individual to organizational and at the same time contingent IT adoption. As knowledge barriers, breadth and depth of IT usage increase the risk of assimilation gaps grows, too. Therefore, we adopt a user-centered approach in order to analyze where these risks emerge from and how they can be overcome thus driving the successful infusion of information technology in HR processes.

THE DIFFUSION OF INFORMATION TECHNOLOGY INNOVATION

The diffusion of IT innovation emerged from more general approaches to innovation diffusion such as Rogers (1983). Focusing on factors that drive the adoption of innovation by individuals in the beginning, subsequent diffusion models were developed for the diffusion within and between organizations. Meanwhile, both approaches have been merged into hybrid models of IT diffusion (e.g. Gallivan (2001)).

The Adoption of Information Technology by Individuals

Early research on innovation adoption was inspired by research focusing on the adopter as an individual deciding to use a certain innovation or not. These approaches are usually referred to as factor models as they try to identify aspects influencing the individual adoption decision. Among the most important theories are Rogers' (1983) framework of diffusion of innovation (DOI) and the Technology Acceptance Model (TAM) (Davis, Bagozzi and Warshaw, 1989).

Diffusion of Innovation Theory

In his DOI theory, Rogers (1983) defined diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (p.5). Among the factors influencing innovation diffusion, Rogers identified the characteristics of the innovation, the social system and the communication channels used. These factors were considered to interact over time (Prescott and Conger, 1995). On a sub-factor level, innovation characteristics include relative advantage, compatibility, complexity, trialability and observability. When considering social system characteristics, attributes of the individual as well as of its group, organization, opinion leaders and senior management were thought to be underlying sub-factors. Within the factor of the communication channels all internal or external channels used to support the process of spreading knowledge about the innovation were analyzed (Fichman, 1992; Prescott and Conger, 1995).

As evidence for exploring IT diffusion, DOI theory and its derived models were validated in various IT assimilation scenarios (e.g. Gordon and Gordon, 1993; Hoffer and Alexander, 1992). Other researchers extended the theory by introducing additional factors to make it applicable to more complex scenarios (Fichman, 1992). Among the most discussed extensions are the influence of managerial support on the individual adoption decision (Leonard-Barton and Deschamps, 1988), the relevance of knowledge burdens for adoption decisions (Attewell 1992) and the impact of social contacts on adopters and adoption (Katz and Shapiro 1986).

The Technology Acceptance Model

With the TAM, Davis provided a basis for tracing the impact of external variables such as the factors mentioned above on an individual's internal beliefs, attitudes and intentions (1989). By focusing on factors affecting user acceptance of IT, TAM has a different focus than the more general DOI framework. In his model, Davis found two variables to be significantly correlated with IT system usage: perceived usefulness and perceived ease of use. While one might think that TAM thus introduced a reduced set of new factors to IT adoption, Fichman (1992) noted that there were parallels between TAM and DOI. He stated that "perceived usefulness and perceived ease of use are essentially the same as diffusion theory's relative advantage and complexity".

Various researchers later proved the prediction quality of the model regarding IT usage (Davis et. al, 1989; Adams, Nelson and Todd, 1992; Taylor and Todd, 1995). However, other researchers argued that TAM omitted variables that were important predictors for user acceptance. Thus, the original model was extended by various aspects. Mathieson et al. (2001) introduced perceived user resources as a valuable addition to the model. Taylor and Todd (1995) suggested to consider subjective norms and perceived behavioral control as influencing factors. Venkatesh and Davis (2000) found social influence processes as well as cognitive instrumental processes as influencing factors of user acceptance.

The Adoption, Diffusion and Infusion of IT within Organizations

Similar to the models on individual innovation adoption, models on organizational adoption also go back to Rogers (1983). Rogers separated five stages: the identification of the problem and the search for an innovation resolving it compose the first two stages. The adaptation, clarification and routinization of the technology as well as of the organizational process form the later ones. While Kwon and Zmud (1987) in a more elaborated model for technology implementation presented a model of six stages of assimilation, other researchers strengthened the perspective that adoption within organizations needs to be separated into an adoption phase on the firm level and an additional adoption phase on the level of the individual after the effective implementation of the software (Leonard, Barton and Deschamps, 1988). These approaches are referred to as contingent or authority innovation adoption. In order to achieve the secondary phase of adoption for each individual within

the organization, three different strategies are separated: the adoption can be declared to be mandatory, it can be left to a voluntary basis or it can be based on a dynamic, multi-step approach in which outcomes of project stages are evaluated and then used in order to decide on a broader adoption within the organization (Agarwal, Tanniru and Wilemon, 1997). However, Fichman and Kernerer (1999) pointed out that an assimilation gap might appear in case the management makes the primary adoption decision, but the software remains unused for various reasons.

As factor as well as stage models to innovation diffusion generated lots of research within the past two decades leading to various extensions especially of factor models, researchers started to classify research according to different dimensions. For example, Fichman (1992) suggested the *locus of adoption* as a categorization and separated between individuals and organizations as such potential loci. Prescott and Conger (1995) on the contrary considered the *locus of impact* as the relevant criterion and distinguished between the IT unit, intra-organizational and inter-organizational loci of impact. Other researchers such as Gallivan (2001) argued that factor models and stage models need to be merged into hybrid models of technology diffusion in order to understand contingent innovation diffusion.

THE RECRUITMENT FUNCTION AND ITS FORMS OF IT SUPPORT

As we aim to consider the adoption and diffusion of IT within the recruitment function, we are now going to present the recruiting process as part of the Human Resources function in general. Then, we pass on to the different forms of information technology supporting the attraction and selection of candidates.

The Recruitment Function as part of Human Resources

The recruitment and selection of employees is a core function in human resources management (HRM). The recruitment stage follows the personnel planning phase and precedes the employee development and retention phases (Olfert, 2003). The core recruitment and selection process can be decomposed into the attraction and the selection of candidates (Figure 1) which can in turn be separated into planning and execution activities (Färber, 2003).

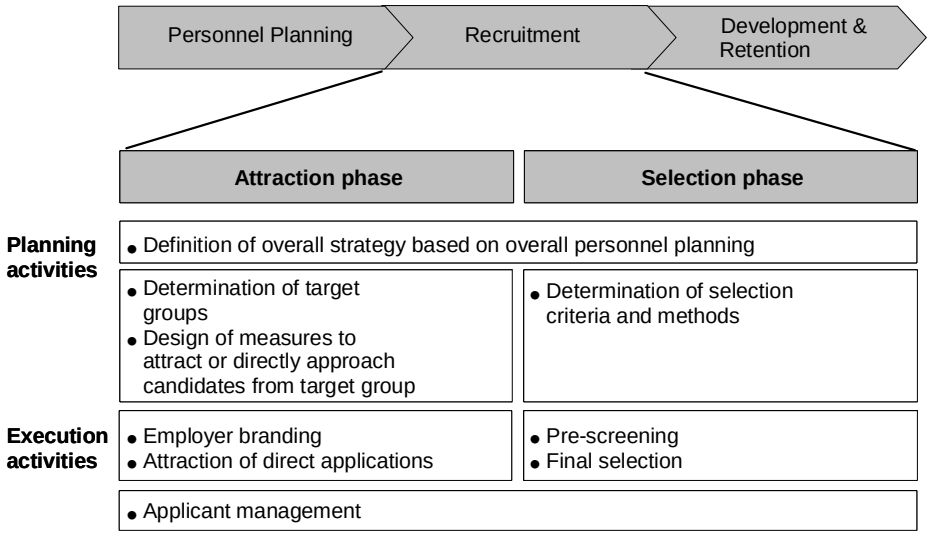

Figure 1. The Recruitment function as part of the Human Resources function

Within the execution activities, Employer Branding comprises all long-term marketing measures to establish an attractive employer image for potential candidates. In contrast to this long-term approach to personnel marketing, personnel attraction includes all activities used to directly attract candidates in order to make them apply for a specific open position (Beck, 2002). As the objective of personnel attraction is to generate a critical mass of qualified candidates, it includes passive search activities such as job postings as well as active search activities such as the search in online resume databases (Armstrong, 1995; Beck, 2002). After the applications are retrieved, an internal workflow is started. Different selection instruments and methods are used to assess the applicants and to filter out only those candidates that might fit the job (Armstrong, 1995). These internal tasks and workflows that involve frequent internal interactions between HR and specialized departments together with the external communication with applicants are also referred to as applicant management.

Current Systems in E-Recruitment

While IT has a longer tradition in HR fields like payroll and attendance management, its application within the recruitment section of HR is a rather young discipline. Basically, this development can be traced back to when the Internet emerged as a channel to attract high volumes of candidates at low cost. As depicted in figure 2, three different forms of IS-support can be identified within the recruitment process:

- The *career sections of corporate websites* as well as *internet job portals* not only serve as a channel (1) to attract candidates, but also provide a means for candidates (2) to apply for relevant jobs either via E-Mail or via application forms.
- The increasing amount of digital and at the same time structured candidate information lead to the emergence of a third category of applications in E-Recruitment, the so-called *applicant management systems*. These systems are invisible to candidates and only support internal workflows such as the posting of job ads, response management and communication between the HR and specialized departments.

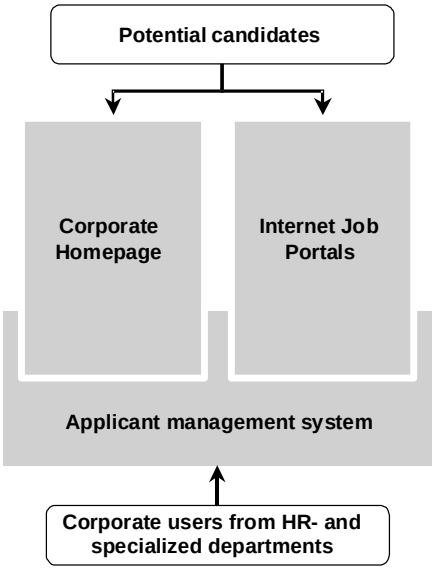

Figure 2. Forms of IS-support in E-Recruitment

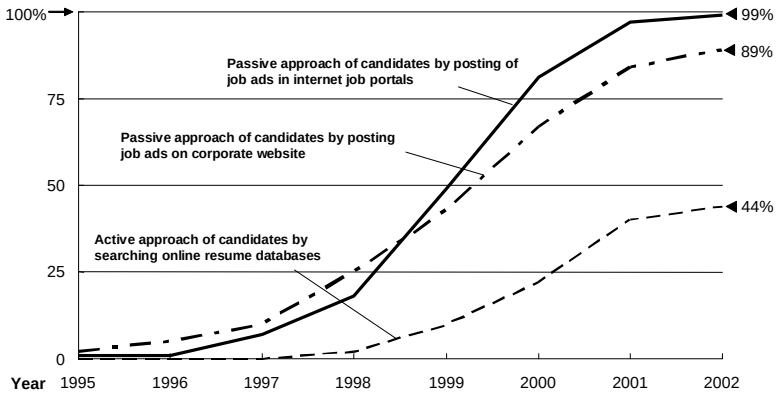

Figure 3. The diffusion of IT in candidate attraction (Färber, 2003a)

The Diffusion of IT in Corporate HR Processes – Results from an Empirical Survey

As part of our longitudinal empirical research, we analyzed the usage of IT within the recruitment function of the German Top-1.000-companies[1]. Figure 3 illustrates the years when companies started to use different ways to attract candidates over the Internet. First, one can see that the adoption of online job ads on either the corporate website or internet job portals shows a typical S-curve over the past 10 years. While these passive ways to attract candidates over the internet are now established and almost all companies use such approaches, the active approach of candidates via online resume databases lags behind (Färber, 2003a). Figure 4 in addition shows that the successful passive attraction of candidates over the internet drives the diffusion of digital applications. German companies expect a complete shift in the ratio between paper-based and digital applications within only seven years until 2009 (Keim, 2005). Even though this development drives the adoption of applicant management systems, this form of IT support still lags behind with only one out of five companies using such systems. Thus, one can say that even though the adoption of IT within the recruitment function continues to grow over time, its diffusion decreases along the different stages of the recruitment process.

[1] Yearly questionnaire-based survey conducted since 2002. Companies selected based on turnover. Response rates range from 15.1% to 19.6%.

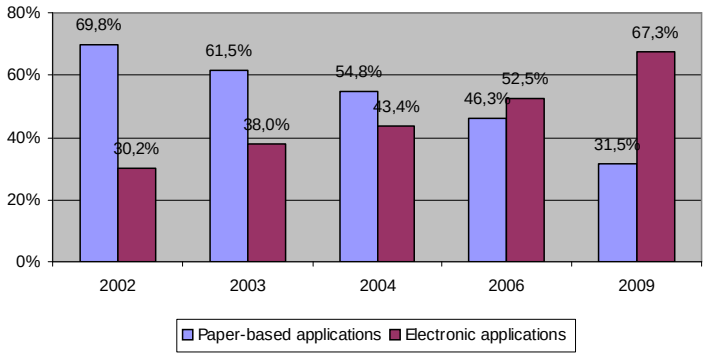

Figure 4. Past and expected diffusion of digital applications (Keim, 2005)

THE DIFFUSION OF IT IN CORPORATE HR-PROCESSES – A USER-CENTERED APPROACH

In order to complement our quantitative research on how software in the HR field is adopted by organizations, we conducted several case studies within the last three years. Based on interviews with HR managers from large and small enterprises, we gained a deeper insight into the drivers and inhibitors of software adoption and diffusion. In this section, we give an overview of the research method and then integrate the findings from the case studies into a concrete stage model for e-HR.

Research Method

Since 2002, we have conducted a total of 17 case studies on IT support in recruitment processes. Over these three years we have interviewed the personnel marketing and recruitment managers of 13 German Fortune-1,000 enterprises and four SMEs. Two case studies were repeated after 12 months in order to follow the companies in their development. The pre-structured interviews lasted about two hours and were conducted by two researchers. The questions asked together with the protocols used were chosen, elaborated and refined based on Eisenhardt (1989) and Yin (2003). The results were transcribed and then sent back to our interlocutors for revision. The purpose of the case studies was to evaluate how IT diffuses through corporate recruiting processes. In particular, we wanted to verify our assumption that perceived usefulness and perceived ease of use as described in the TAM (Davis et. al, 1989), as well as knowledge burdens, managerial influence and adopter interdependencies (Fichman, 1992) have a direct influence on adoption and diffusion of IT supported recruiting processes. As our assumption is not easily observable, we used deductive testing (Lee, 1989). We derived several questions that could be more easily evaluated, allowing us to test our assumption indirectly. The following questions were used to guide the case studies:

- What are the differences between IT diffusion and adoption in relation to the locus of impact (HR department locus of impact, intra-organizational locus of impact, inter-organizational locus of impact)?
- How do different factors contained in theory influence IT adoption?
- How can we explain the assimilation gap for e-HR-systems in the later stages of the recruitment process?

IT Diffusion in Recruitment Processes from a User Perspective

From our quantitative research we concluded that the diffusion of IT decreases along the recruitment process. We showed that while almost all large German companies use the Internet to attract qualified candidates, only one out of five companies uses internal candidate databases to which specialized departments have access. We suggest that the underlying arguments for this development are in line with diffusion theory and that different diffusion models need to be applied in order to explain what can be observed by quantitative and qualitative research.

From our case studies we learned that the high acceptance of internet-based candidate attraction could mainly be explained from a small set of arguments. First, the decision to post job ads on the internet is only made within the HR department, and here especially within the personnel marketing section. Also, users can be found within this department only. Thus, the adoption and diffusion of IT is limited to a single organizational unit. Second, the technology is easy to use. One person responsible for posting job ads on the internet told us: “When using print media we created the job ads ourselves. Today, we

simply make the same file available on the internet." Thus, the *ease of use* remains unchanged compared to existing practices. The *perceived usefulness*, however, increases drastically as the internet attracts larger numbers of candidates at lower costs than print media. This is a major argument for HR managers as the underlying assumption is that with increasing numbers of candidates the absolute number of relevant and qualified candidates grows.

When comparing the diffusion of these passive ways of candidate attraction over the web to active ways such as searching online resume databases and then directly contacting them, we already see lower fractions of companies that have successfully adopted such technologies (figure 3). These passive ways are often considered as quick ways to get in contact with candidates as the need to design and post a job ad vanishes. So how can the lowered diffusion rates for this kind of technology be explained? As in many companies the HR department itself searches the resume databases and not the specialized department, the locus of infusion remains unchanged and cannot be used as an explanation. Also, the perceived benefits due to the advantages mentioned before are comparatively high. However, our interlocutors perceived difficulties in the field of ease of use: many companies either do find candidates they did not search for when using such databases or they do not find the candidates they were looking for even though they are contained in the database. This is mainly due to the difficulty of specifying human characteristics as part of a keyword based Boolean search. The inappropriateness of the methods applied has already been identified as a problem earlier in literature and motivates our research in the field of semi-automated personnel selection (Färber, 2003b). Thus, when considering active as well as passive ways of attracting candidates over the internet, we can conclude that the factors typically associated with the TAM such as *perceived ease of use* and *perceived usefulness* are highly relevant for this scenario in which the same department or users within the organization adopt and effectively use the technology in consideration.

This, however, changes as soon as the locus of impact goes beyond the HR department and includes managers for the selection of candidates within other specialized departments or even the entire workforce of the company. As figure 5 shows, several scenarios can be distinguished:

- Stage 1: The company builds up a database in which all incoming *structured digital* applications are stored. These applications are typically entered by external candidates into an application form on the corporate website and can be stored in the database without any manual transformation. At this stage, only the HR department has access to this database, the further business processes remain unchanged.
- Stage 2: In order to implement a company-wide internal candidate pool for external candidates, *all* incoming applications are stored in this database. This implies that incoming paper-based applications are digitalized and then at least partly indexed. Similarly, E-Mail applications need to be brought into a (semi-)structured format so they can be stored within the system. As all external candidates are stored in this system, providing a coherent view on all candidate data, access to the database no longer needs to be restricted to the HR department. Thus, those managers from specialized departments that are engaged in recruitment issues can also be given access to the system now providing a means for an IT supported company-internal workflow.
  Passing from stage 1 to stage 2 is not easy: the introduction of a system to support the workflow requires a detailed analysis of the underlying business process. As part of this analysis the interaction between the HR department and the specialized departments needs to be reconsidered. Thus, compared to earlier phases *knowledge barriers* for IT diffusion are relatively high. Also, as this development now passes the boundaries of the HR department, we are now in a typical *contingent* approach to IT diffusion as described by Gallivan (2001). Finally, HR managers require *top management support* in order to successfully diffuse the software to other departments. However, the enforcement of new recruitment practices within the specialized departments is difficult, which partly explains the assimilation gaps previously identified.
- Stage 3: Within this stage, the database is not only used to represent external candidates, but also *internal* employees that wish to change their position within the company. While this might look as a minor step at first, consequences are of high importance as the locus of impact passes from the HR department to specialized departments and then to the entire workforce. By extending the database to employees an internal skill market place is established in which external candidates compete with internal ones.
  While such practices provide benefits when desiring to increase internal flexibility and mobility, problems may appear from several perspectives: first, corporate culture may not always be compliant with the idea that employees manage their careers within the organization themselves. Also, privacy is major issue as employees may not want to be visible in their desire to change jobs until a certain stage of the selection process. Finally, as less flexible employees might feel social pressure to enter their profiles into the internal system, the workers' representatives might be opposed.

- Stage 4: In this final scenario the infusion of the recruitment software is reached: not only do all internal members of the company have different rights to access the system and actively use the system. It is also extended for inter-organizational collaboration. The system now supports *external* partners such as personnel marketing agencies, executive searchers and outsourcing service providers and integrates them into the business process. Thus, the locus of impact now not only covers the entire workforce of the employer in consideration but also external suppliers.

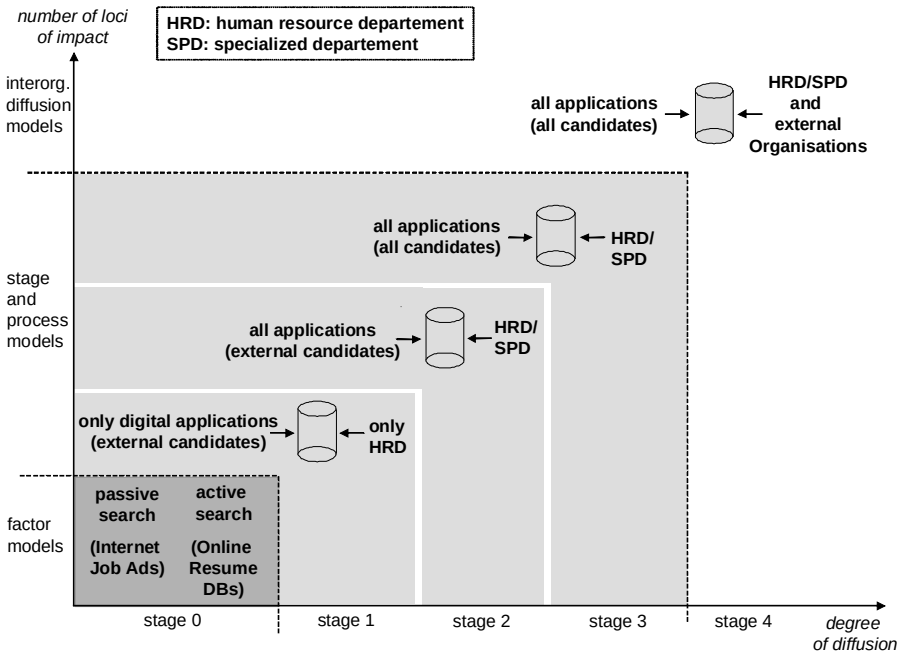

Figure 5. E-HR-diffusion and locus of impact

Bridging the Assimilation Gap: Guidelines for Managers

From the quantitative and qualitative research we can conclude that even though companies see high potential for cost and time reduction through e-HR, they either do not adopt such technology or they face problems in diffusing and infusing it. Despite these difficulties, some companies successfully infused IT in the recruitment field. What can we learn from these companies?

- First, the successful attraction of candidates over the Internet is an important step. But companies do not only need to attract candidates via this channel. They also need to increase the number of structured digital applications by guiding candidates to their application forms. Internal candidate databases only make sense when *all* incoming resumes are stored in this same database. In order to reduce costs for the digitalization and indexing of paper-based applications, employers need to actively promote their application forms.
- In order to convince recruiters and managers to use the internal tool supporting the workflow, HR managers need to actively communicate the advantages of such systems. This is especially important as we are situated in a *mandatory strategy to authority based innovation diffusion* at this stage. As IT support in recruitment helps to administrate the floods of resumes that large employers receive due to strong corporate or employer brands and reduced application cost, it helps people engaged in recruitment to spend less time on administrative tasks and to focus on more strategic tasks such as talent relationship management or personnel development.

CONCLUSION

Based on three consecutive surveys with HR managers from the Top-1,000-companies in Germany and on 17 case studies, it was shown that (1) IS-support for the recruiting process within the HR department is gaining importance and follows a

typical S-curve. Our stage model to e-HR innovation showed that (2) diffusion within the focal HR department, where locus of adoption and of impact are identical, is generally strong but substantially depends on perceived ease of use. However, (3) as soon as locus of impact changes to other departments, there is an assimilation gap that can be explained by common arguments provided by the theory such as lack of top management support, social norms and knowledge barriers. Based on these findings, we took a user perspective on IT diffusion in order to disclose and eventually overcome inhibiting factors to IT adoption for HR processes. Drawing from our case studies (4) we can propose to incorporate individual and departmental goals into a firm's internal IT diffusion strategy. This implies that managers should employ a multi-phased incremental approach starting from the focal HR unit and moving over recruitment managers within the specialized departments to the entire firm as developed above. In doing so, the particular adoption drivers of the different user groups are considered reflecting their heterogeneous needs and organizational goals thus contributing to a systematic IT evolution within the firm.

REFERENCES

1. Adams, D. A., Nelson, R. R. and Todd, P. A. (1992) Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication, *MIS Quarterly*, Vol. 16, pp. 227-247.
2. Argawal, R., Tanniru, M. and Wilemon, D. (1997) Assimilating Information Technology Innovations: Strategies and Moderating Influences, *IEEE Transactions on Engineering Management*, Vol. 44, No. 4, pp. 347-358.
3. Armstrong, M. (1995) A handbook of personnel management practice, 5th Edition, London, UK, Kogan Page.
4. Attewell, P. (1992) Technology Diffusion and Organizational Learning: The Case of Business Computing, *Organization Science*, Volume 3, pp. 1-19.
5. Beck, C. (2002) Professionelles E-Recruiting: Strategien-Instrumente-Beispiele, Neuwied, Kriftel, Luchterhand.
6. Davis, F. D. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, September, pp. 318-340.
7. Davis, F. D., Bagozzi, R. P. and Warshaw, P. R. (1989) User acceptance of information technology: a comparison of two theoretical models, *Management Science*, 35, 8.
8. Eisenhardt, K. M. (1989) Building Theory from Case Study Research, *Academy of Management Review*, 14, 4, 532-550.
9. Färber, F., Keim, T., König, W., von Westarp, F., Weitzel, T. and Wendt, O. (2003a), Recruiting Trends 2003: Eine empirische Untersuchung der Top-1.000-Unternehmen in Deutschland, *Working paper*, Frankfurt am Main.
10. Färber, F., Keim, T. and Weitzel, T. (2003b) An Automated Recommendation Approach to Personnel Selection, *Proceedings of the 2003 Americas Conference on Information Systems*, Tampa, Florida, USA.
11. Fichman, R. G. (1992) Information Technology Diffusion: A Review of Empirical Research, *Proceedings International Conference on Information Systems*, Dallas, USA, pp. 195-206.
12. Fichman, R.G. and Kernerer, C.F. (1999) The Illusory Diffusion of Innovations: An Analysis of Assimilation Gaps, Information Systems Research, Vol. 10, No. 3, pp. 255-275.
13. Gallivan, M. J. (2001), Organizational Adoption and Assimilation of Complex Technological Innovations: Development and Application of a New Framework, *The DATA BASE for Advances in Information Systems*, Vol. 32, No. 3, pp. 51-85
14. Gordon, S. R. and Gordon, J. R. (1993) Factors that Affect the Adoption of Distributed Database Management Systems, *Proceedings of the 1993 ACM SIGCPR Conference*, April, St. Louis, USA, pp. 151-167.
15. Hoffer, J. A. and Alexander, M. B. (1992) The diffusion of database machines, *Data Base*, Vol. 23, No. 2, pp. 13-19.
16. Katz, M. L. and Shapiro, C. (1986) Technology Adoption In the Presence of Network Externalities, *Journal of Political Economy*, Volume 94, 1986, pp. 822-41. ´
17. Keim, T., König, W., von Westarp, F., Weitzel, T. and Wendt, O. (2005) Recruiting Trends 2005 - Eine empirische Untersuchung der Top-1.000-Unternehmen in Deutschland und von 1.000 Unternehmen aus dem Mittelstand, *Working paper*, Frankfurt am Main.
18. Konradt, U. and Sarges, W. (2003) E-Recruitment und E-Assessment, Hogrefe-Verlag GmbH, Germany.
19. Kwon, T. H. and Zmud, R. W. (1987) Unifying the Fragmented Models of Information Systems Implementation, in J. R. Boland, and R. Hirshheim (eds.), Critical Issues in Information Systems Research, New York, John Wiley, 1987, pp. 227-251.
20. Lee, A. S. (1989) A scientific methodology for MIS Case Studies, *MIS Quarterly*, Volume 13, Issue 1, pp. 33-50.

21. Lee, S.-H. (1999) Taxonomy of HRM Policies of Knowledge-based Firms: a Resources-based Explanation, *International Journal of Innovation Management*, Vol. 3, No. 4, pp. 379–395.
22. Legris, P., Ingham, J. and Collerette, P. (2003) Why do people use information technology? A critical review of the technology acceptance model, *Information & Management*, 40, pp. 191-204.
23. Leonard-Barton, D. and Deschamps, I. (1988) Managerial influence in the implementation of new technology, Management Science, Volume 34, pp. 1252-1265.
24. Mathieson, K., Peacock, E. and Chin, W. W. (2001) Extending the Technology Acceptance Model: The Influence of Perceived User Resources, *The DATA BASE for Advances in Information Systems*, Vol. 32, No.3, pp. 86-112.
25. Olfert, K. (2003) Personalwirtschaft, 10th Edition, Friedrich Kiel Verlag GmbH, Ludwigshafen, Germany.
26. Prescott, M.B. and Conger, S.A. (1995) Information Technology Innovations: A Classification by IT Locus of Impact and Research. *The Data Base*, May/August, 26(2-3).
27. Rogers, E. M. (1983) Diffusion of Innovations, New York, USA, The Free Press, 3rd Edition.
28. Schneider, B. (1995), Personalbeschaffung, Frankfurt, Germany: Peter Lang Europäischer Verlag der Wissenschaften.
29. Taylor, S. and Todd, P. A. (1995) Understanding Information Technology Usage: A Test of Competing Models, *Information Systems Research*, Vol. 6, pp. 144-176.
30. Venkatesh, V. and Davis, F. D. (2000) A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies, *Management Science*, Vol. 46, No. 2, pp. 186-204.
31. Yin, R. K. (2003) Case Study Research: Design and Methods, Sage Publications, Inc., Thousand Oaks, London, New Delhi.